

REMARKS

Claims 13 and 35 are amended. New claim 36 has been added.

Before responding to the rejections, it may be helpful to briefly discuss the nature and significance of the invention. The present invention is a filter element composed of a plurality of filter media layers of successively increasing degree of separation and decreasing storage capacity commencing with a melt-blown synthetic fiber inflow layer and ending with a predominantly cellulose containing compressed filter paper discharge layer. The filter element of the invention provides enhanced filtration performance compared to comparably sized conventional filter media. Increased filter performance is achieved by using melt-blown fibers of small diameter. Because such fine melt-blown fibers require support, it has been customary in the art to provide such filter layers with a stable support layer. This, however, wastes space and adversely affects filter performance since the support layers are relatively thick but have no filter functionality, but only serve as supports. Increased performance is also achieved by using successive layers which become progressively finer in the direction of flow. Because cellulose fibers are relatively coarse (i.e., have comparatively large diameters), the wisdom of the art has been to avoid the use of cellulose fibers for the finest filter layers. Instead, it has been customary to use layers of finer fibers supported by a porous support as described above.

The present invention breaks new ground by using a predominantly cellulose-containing compressed filter paper having a weight per unit area of at least about 50 g/m² as the discharge layer. The compressed cellulosic paper

serves both as a support (which is needed, e.g., for pleating and for mechanical stability) and as final fine filteractive layer. (See the paragraph bridging pages 2 and 3 of the instant specification.) The combination of a melt-blown initial filter layer, which has a lower filtration efficiency but a higher dirt holding capacity, and a final compressed cellulosic fine filter layer which has a high filtration efficiency, produces a filter element of enhanced effectiveness in which the entire thickness is filteractive.

The filter material of the invention has recently become commercially available under the trade name Mann & Hummel MULTIGRADE_F and has been very successful in the marketplace. Because of its enhanced filter performance it has captured a rapidly increasing share of the OEM market and has to a great extent supplanted competitive materials from other manufacturers. Counsel is advised that imitations are now starting to appear. With these points in mind, we turn now to the rejections.

The rejection of claim 21 under 35 U.S.C. §112, first paragraph, is respectfully traversed. Claim 21, as currently amended merely recites that at least one cellulose containing filter layer includes up to 50% of synthetic fibers. Explicit support for this is found, *inter alia*, in the at page 3, lines 6-8 from the bottom and in original claim 11. Reconsideration and withdrawal of the rejection are therefore respectfully requested.

Reconsideration and withdrawal of the rejection of claims 13, 15-22 and 35 under 35 U.S.C. §112, second paragraph, are also respectfully requested.

With respect to the phrase “predominantly cellulose containing filter paper”, the specification at page 3 does not teach cellulose contents of “up to 50%” as alleged in the Office Action. Instead, page 3 of the specification indicates that the cellulose containing filter papers can contain up to 50% of a **foreign substance** such as glass or polyester fibers. No inconsistency or indefiniteness is seen.

Moreover, there is no basis for the assertion in the Office Action that the “common dictionary meaning” of the term “predominantly” necessarily implies amounts of more than 50%. No such dictionary definition has been cited. The only dictionary definition of record is that cited on page 11 of Applicants’ Appeal Brief, which merely defines it as “having greatest importance, most common or conspicuous, main or prevalent.” To the same effect see the definition in the attached copy of *Webster’s New World Dictionary*, where “predominant” is defined as “most frequent, noticable, etc.; prevailing or preponderant.” In a three part mixture of 50% cellulose, 25% glass fibers and 25% polyester fibers, under these definitions the cellulose would clearly be the predominant constituent, notwithstanding the fact that it is not present in a proportion of over 50%.

Claims 13 and 35 have been amended to use consistent terminology to refer to the layer weights per unit area as no differences were intended.

As explained in the specification in the paragraph bridging pages 4 and 5, the compressed cellulose containing filter layer either by compression during the manufacturing process or by subsequent calendaring. Such processes are well understood by persons skilled in the paper art.

Finally, the phrase “during a folding process” in claim 19 means precisely what it says, that the filter element is folded and pressure is applied in the course of the folding operation. Pleating is a common example of such folding, but other types of folding are possible. For example, see the folded filter bags illustrated in Figures 2a, 2b and 2c of the cited Klimmek reference, EP 338,479.

Thus, the claims, as amended, are respectfully submitted to have a readily ascertainable meaning to persons skilled in the relevant art and to particularly point out and distinctly claim what applicants regard as their invention in full compliance with the requirements of 35 U.S.C. §112, second paragraph.

The rejections under 35 U.S.C. §103(a) of claims 13, 15-19, 21 and 35 over Kadoya in view of Sabee or Togashi; of claims 18-20 over the same references further in view of the statements on page 10 of Applicants’ Appeal Brief; and of claim 22 over Kadoya, Sabee or Togashi, and Klimmek are all respectfully traversed.

Kadoya does not correspond to the present invention. Kadoya explicitly teaches at column 3, lines 5-6 and 50-51 that his filter elements comprise a substrate 3 having a plurality of pores 5 defined therethrough. See also Kadoya’s Figures 1 through 6 which show that all Kadoya’s filter embodiments have such a porous supports. This is precisely the state of the prior art from which the present invention departs. The discharge layer of Kadoya is his porous support 3 and not a filteractive layer with the greatest degree of separation as required by Applicants’ claims. Thus, even if the melt-blown layers of the secondary references were incorporated into the Kadoya filters as

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postulated in the rejections, the result would not correspond to the presently claimed invention. Thus, the cited references fail to make out a proper, *prima facie* case of obviousness, and reconsideration and withdrawal of the obviousness rejections are respectfully requested.

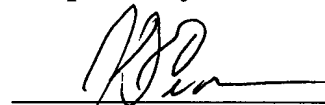
In view of the foregoing amendments and remarks, the application is respectfully submitted to be in condition for allowance, and prompt, favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #178/48916).

Respectfully submitted,

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shut out or obstruct opposing bids — **pre-emptive-ly** or **pre-emptively** *adv.*
preen (prén) *vt.* [ME *preynen*, altered (infl. by *preonen*, to prick with a pin < *preon* < OE, a pin) < *proinen*, to PRUNE³] **1** to clean and trim (the feathers) with the beak: said of birds **2** to make (oneself) trim; dress up or adorn (oneself) **3** to show satisfaction with or vanity in (oneself) — *vi.* to dress up in a fussy way; prink or primp — **preen'er** *n.*
pre-establish or **pre-establish** (pré'e stab'l'ish) *vt.* to establish in advance
pre-exilic or **pre-exilic** (pré'eks il'ik; -eg zil'-, -ig-) *adj.* [**<** PRE- + *L* *exilium*, exile + *-ic*] of that period of Jewish history preceding the Babylonian Exile (6th cent. B.C.). Also **pre-exil'ian** or **pre-exil'ian**
pre-exist or **pre-exist** (pré'eg zist', -ig-) *vt., vi.* [**<** *LL* *praexistere*] to exist previously or before (another person or thing): also **pre-exist'**
— **pre-existence** or **pre-exist'ence** *n.* — **pre-existent** or **pre-existent** *adj.*
pre-1 **2** **3** **4** **5** **6** **7** **8** **9** **10** **11** **12** **13** **14** **15** **16** **17** **18** **19** **20** **21** **22** **23** **24** **25** **26** **27** **28** **29** **30** **31** **32** **33** **34** **35** **36** **37** **38** **39** **40** **41** **42** **43** **44** **45** **46** **47** **48** **49** **50** **51** **52** **53** **54** **55** **56** **57** **58** **59** **60** **61** **62** **63** **64** **65** **66** **67** **68** **69** **70** **71** **72** **73** **74** **75** **76** **77** **78** **79** **80** **81** **82** **83** **84** **85** **86** **87** **88** **89** **90** **91** **92** **93** **94** **95** **96** **97** **98** **99** **100** **101** **102** **103** **104** **105** **106** **107** **108** **109** **110** **111** **112** **113** **114** **115** **116** **117** **118** **119** **120** **121** **122** **123** **124** **125** **126** **127** **128** **129** **130** **131** **132** **133** **134** **135** **136** **137** **138** **139** **140** **141** **142** **143** **144** **145** **146** **147** **148** **149** **150** **151** **152** **153** **154** **155** **156** **157** **158** **159** **160** **161** **162** **163** **164** **165** **166** **167** **168** **169** **170** **171** **172** **173** **174** **175** **176** **177** **178** **179** **180** **181** **182** **183** **184** **185** **186** **187** **188** **189** **190** **191** **192** **193** **194** **195** **196** **197** **198** **199** **200** **201** **202** **203** **204** **205** **206** **207** **208** **209** **210** **211** **212** **213** **214** **215** **216** **217** **218** **219** **220** **221** **222** **223** **224** **225** **226** **227** **228** **229** **230** **231** **232** **233** **234** **235** **236** **237** **238** **239** **240** **241** **242** **243** **244** **245** **246** **247** **248** **249** **250** **251** **252** **253** **254** **255** **256** **257** **258** **259** **260** **261** **262** **263** **264** **265** **266** **267** **268** **269** **270** **271** **272** **273** **274** **275** **276** **277** **278** **279** **280** **281** **282** **283** **284** **285** **286** **287** **288** **289** **290** **291** **292** **293** **294** **295** **296** **297** **298** **299** **300** **301** **302** **303** **304** **305** **306** **307** **308** **309** **310** **311** **312** **313** **314** **315** **316** **317** **318** **319** **320** **321** **322** **323** **324** **325** **326** **327** **328** **329** **330** **331** **332** **333** **334** **335** **336** **337** **338** **339** **340** **341** **342** **343** **344** **345** **346** **347** **348** **349** **350** **351** **352** **353** **354** **355** **356** **357** **358** **359** **360** **361** **362** **363** **364** **365** **366** **367** **368** **369** **370** **371** **372** **373** **374** **375** **376** **377** **378** **379** **380** **381** **382** **383** **384** **385** **386** **387** **388** **389** **390** **391** **392** **393** **394** **395** **396** **397** **398** **399** **400** **401** **402** **403** **404** **405** **406** **407** **40**

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fruitful /a *pregnant* ca-
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monkeys — **pre-hen-sile**
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tory Also **pre-his-to-ry**
pre-his-to-ry (prĕ'his-tō-
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leading to an event, cri-
pre-ignition (prĕ'ig ni-
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pre-judge (prĕ'juj') *v*
praedjudicare: see PRE-
or without all the evide-
judge-ment *n*.
pre-ju-dice (prĕ'joo d'
praedjudicium < *prae-*
judex (gen. *judicis*), ju-
the facts are known; j-
unfavorable 2 *a*) a jud-
that contradict it; uni-
art/ *b*) the holding o-
intolerance, or irritation
pations, etc. 4 injury
action of another or
harm, as by some jud-
prejudice; bias — **with-**
2 *Law* without dismiss-
often with *to*
SYN.—**prejudice** implies
opinion, usually an unfav-
/a murder motivated by
favor of or against some-
kind/; **partiality** implies:
strong fondness or attac-
Brahms/; **predilection** is
one's background, tempe-
erence /he has a *predilec-*
pre-ju-di-cial (prĕ'joo d-
harm; injurious; detrin-
pre-ju-cy (prĕ'ə sə) *n*,
1 *a*) the office or rat-
pre-ju-ture (-choor', -
a hostile term: also *pre-*
pre-lap-sar-dian (prĕ'lar-
Man 2 old-fashioned
pre-late (prĕ'lit) *n*. || *M*
orig., ruler < pp. of I
ranking ecclesiastic, as
lat'ik, *pri-* *adj*.
pre-lect (prĕ lekt') *vi*.
before, lecture: see *PRE-*
tion *n*. — **pre-lec-tor** *n*.
pre-li-ba-tion (prĕ'li bā-
prae-, PRE- + *libare*, to
pre-lim (prĕ lim', pri-; *p*
prelim abbrev. *prelimin-*
pre-lim-i-nary (prĕ lim'-
preliminarius < L *pro-*
limen, threshold (see
main action, discussio
paratory — *n*, *pl* -*na*
preliminary step, proce-
contest or match befo-
pre-lit-er-ate (prĕ'lit'ər-
a society not having a
Pre-log (prĕ'log), *Vlac*
slavia
pre-lude (prĕ'yood'; *ai*
prélude < ML *praelu-*
prae-, PRE- + *ludere*,

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